

Application No.: 09/710,605
Preliminary Amendment dated: February 23, 2006
Reply to Final Office Action of: September 23, 2005

REMARKS

This amendment is responsive to the Final Office Action dated September 23, 2005. Claims 1, 5-11, 15-21, and 25-30 are pending in this application. Reconsideration of this application in view of amendments and arguments presented here is respectfully requested.

Claim Rejections under 35 U.S.C. § 103

The Examiner has rejected claims 1, 5-8, 11, 15-18, 21, 25-28 as being unpatentable over U.S. Patent No. 6,044,381 to Boothby et al. ("Boothby 381") in view of U.S. Patent No. 6,374,262 to Kodama et al. ("Kodama") and further in view of U.S. Patent No. 6,694,7 to King et al. ("King") and further in view of U.S. Patent No. 6,532,480 to Boothby et al. ("Boothby 480"). The Examiner has rejected claims 9-10, 19-20 and 29-30 as being unpatentable over Boothby 381 in view of Kodama in view of King, in view of Boothby 480 and in view of U.S. Patent No. 6,366,898 to Taivalsaari et al. ("Taivalsaari").

Claims 1, 5-8, 11, 15-18, 21, 25-28:

The Examiner has rejected claims 1, 5-8, 11, 15-18, 21, 25-28 as being unpatentable over Boothby 381 in view of Kodama and further in view of King and further in view of Boothby 480. Applicant has amended claims 1, 11 and 21 to more particularly point out and distinctly claim the subject matter regarded as the invention. In particular, claim 1 has been amended to recite a second modification flag contained in the data record in the target database which is "indicative of a second particular event" and "is set upon an occurrence of said second particular event." Similarly, claim 11 has been amended to recite a second modification flag contained in the data record in the target database which is "indicative of a second particular event" and "is set upon an occurrence of said second particular event." Claim 21 has also been amended to recite a second modification flag contained in the data record in the target database which is "indicative of a second particular event" and "is set upon an occurrence of said second particular event."

The present invention, as recited in amended claims 1, 11 and 21, is directed to a method for synchronizing data records between plural databases. One of the problems addressed by the invention is the synchronization between databases that exist, for example, in a hand-held

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computer and two desktop computers. The problem of synchronization between databases that exist in all three computers arises from the need for more than just a modification flag since the modification flag is typically reset after a synchronization between two databases. If the user, for example, wishes to sync the database in the hand-held computer with another database (for example, another desktop computer), record which need to be synchronized are passed over. See Specification page 22. The present invention therefore contemplates a modification count which is a value indicating the number of times the particular data record has been modified. Comparing the modification count when a hand-held computer is synced to another desktop computer prevents overlooking of records which require synchronization. Additionally, the modification count provides little overhead so that fast synchronization (i.e. no comparison of the actual data record) is preserved.

By contrast, the Examiner's base reference, Boothby 381, is directed to synchronization of databases between two computers where each database has a history file indicating the update history of each database. Boothby teaches the passing of the history file which has indications as to the records required for synchronization. Importantly, there is no teaching or suggestion to use a modification flag contained in the data record which is indicative of a particular event. Additionally, Boothby 381 discusses a host database and a remote database with a remote database transferring the history file to the host computer. Such a transfer is not required by the present invention.

The shortcomings of the base reference are not overcome by Kodama, King or Boothby 480. Kodama is directed to a relational database synchronization method which selects records to be synchronized based on a master time update for each record. Since Kodama teaches a record selection method based on master time updates, there is a need for master time synchronization. Such master time synchronization is not necessary in the present invention. Additionally, Kodama does not teach or suggest a modification flag contained in the data record. Similarly, King is directed to synchronization between a master database and a slave database. Importantly, King teaches a master global age variable which is incremented any time any row is changed in the database. King states:

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Master application 19 also defines (202) a global age variable A_M for master database 15 and stores A_M in association with master database 15. A_M is initialized to zero (0), as is every A_i value in T_{Mi} . From this point on, for every database operation that inserts or updates a row in any table of master database 15, master application 19 increments A_M by one and sets the value in the row to the new A_M value. When a row is deleted, master application 19, instead of actually deleting the row in master database 15, increments the value of A_M to indicate a database operation and sets the A_i value in the deleted row to be the negative of A_M ($-A_M$). King col.2 lines 19-29. Emphasis added.

Clearly, King does not teach, as Examiner suggests, a modification count being a “value indicating how many times said first data record ... has been modified.” as is required by claims 1, 11 and 21. Boothby 480 similarly teaches a database synchronization method which synchronizes records along a certain narrow date range. Again, such date synchronization is not required in the present invention.

Therefore, Applicant respectfully submits that a combination of Boothby 381, Kodama, King and Boothby 480 does not teach or suggest every claimed feature of the invention. The prior art reference (or references) must teach or suggest all of the claim limitations. In re Vaeck, 947 F.2d 488 (Fed. Cir. 1991). Since a prima facie case of obviousness has not been set forth, Applicant respectfully submits that claims 1, 11 and 21 are allowable over the cited references. Claims 5-8, 15-18 and 25-28, which depend from claims 1, 11 and 21 respectively, are similarly allowable.

Claims 9-10, 19-20 and 29-30:

The Examiner has rejected claims 9-10, 19-20 and 29-30 as being unpatentable over Boothby 381 in view of Kodama and further in view of King and further in view of Boothby 480 and further in view of Taivalsaari. Claims 9-10, 19-20 and 29-30 depend from claims 1, 11 and 21 respectively. Applicant has amended claims 1, 11 and 21 to more particularly point out and distinctly claim the subject matter regarded as the invention. In particular, claim 1 has been amended to recite a second modification flag contained in the data record in the target database which is “indicative of a second particular event” and “is set upon an occurrence of said second particular event.” Similarly, claim 11 has been amended to recite a second modification flag

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contained in the data record in the target database which is "indicative of a second particular event" and "is set upon an occurrence of said second particular event." Claim 21 has also been amended to recite a second modification flag contained in the data record in the target database which is "indicative of a second particular event" and "is set upon an occurrence of said second particular event."

The present invention, as recited in amended claims 1, 11 and 21, is directed to a method for synchronizing data records between plural databases. One of the problems addressed by the invention is the synchronization between databases that exist, for example, in a hand-held computer and two desktop computers. The problem of synchronization between databases that exist in all three computers arises from the need for more than just a modification flag since the modification flag is typically reset after a synchronization between two databases. If the user, for example, wishes to sync the database in the hand-held computer with another database (for example, another desktop computer), record which need to be synchronized are passed over. See Specification page 22. The present invention therefore contemplates a modification count which is a value indicating the number of times the particular data record has been modified. Comparing the modification count when a hand-held computer is synced to another desktop computer prevents overlooking of records which require synchronization. Additionally, the modification count provides little overhead so that fast synchronization (i.e. no comparison of the actual data record) is preserved.

As discussed above, the Examiner's base reference, Boothby 381, is directed to synchronization of databases between two computers where each database has a history file indicating the update history of each database. Boothby teaches the passing of the history file which has indications as to the records required for synchronization. Importantly, there is no teaching or suggestion to use a modification flag contained in the data record which is indicative of a particular event. Additionally, Boothby 381 discusses a host database and a remote database with a remote database transferring the history file to the host computer. Such a transfer is not required by the present invention.

The shortcomings of the base reference are not overcome by Kodama, King, Boothby 480 or Taivalsaari. As discussed above, Kodama is directed to a relational database

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synchronization method which selects records to be synchronized based on a master time update for each record. Since Kodama teaches a record selection method based on master time updates, there is a need for master time synchronization. Such master time synchronization is not necessary in the present invention. Additionally, Kodama does not teach or suggest a modification flag contained in the data record. Similarly, King is directed to synchronization between a master database and a slave database. Importantly, King teaches a master global age variable which is incremented any time any row is changed in the database. King states:

Master application 19 also defines (202) a global age variable A_M for master database 15 and stores A_M in association with master database 15. A_M is initialized to zero (0), as is every A_i value in T_{Mi} . From this point on, for every database operation that inserts or updates a row in any table of master database 15, master application 19 increments A_M by one and sets the value in the row to the new A_M value. When a row is deleted, master application 19, instead of actually deleting the row in master database 15, increments the value of A_M to indicate a database operation and sets the A_i value in the deleted row to be the negative of A_M ($-A_M$). King col.2 lines 19-29. Emphasis added.

Clearly, King does not teach, as Examiner suggests, a modification count being a “value indicating how many times said first data record ... has been modified.” as is required by claims 1, 11 and 21. Boothby 480 similarly teaches a database synchronization method which synchronizes records along a certain narrow date range. Again, such date synchronization is not required in the present invention.

Taivalsaari is directed to the loading of classfiles for a virtual machine on a handheld computer system. At the least, Taivalsaari does not teach or suggest a modification count which is a value indicating the number of times the particular data record has been modified.

Therefore, Applicant respectfully submits that a combination of Boothby 381, Kodama, King, Boothby 480 and Taivalsaari does not teach or suggest every claimed feature of the invention. The prior art reference (or references) must teach or suggest all of the claim limitations. In re Vaeck, 947 F.2d 488 (Fed. Cir. 1991). Since a prima facie case of obviousness has not been set forth, Applicant respectfully submits that claims 1, 11 and 21 are allowable over the cited references. Claims 9-10, 19-20 and 29-30, which depend from claims 1, 11 and 21 respectively, are similarly allowable.

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Allowable Subject Matter

The Examiner has indicated that claims 7, 17 and 27 have allowable subject matter but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


Applicant wishes to thank the Examiner for the indication of allowable subject matter. Claims 7, 17 and 27 have been rewritten in independent form as claims 31-33.

Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding rejections, and that they be withdrawn. The Examiner is invited to telephone the undersigned representative if an interview might expedite allowance of this application.

Respectfully submitted,

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Dated: February 23, 2006

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